BERMUDA

REPORT

of the

DEPARTMENT

of

AGRICULTURE

for the year

1947

COMMONWEALTH MYCOLOGICAL INSTITUTE
20 AUG 1948

Report of the Director of Agriculture, 1947.

The Wor. H. St. G. Butterfield, M.C.P.,
Chairman, Board of Agriculture.

Sir,

I have the honour to present to you a report on the Department of Agriculture for the year 1947.

1. AGRICULTURE IN 1947.

Agriculture was placed with high priority in the economy of all major countries; but, in spite of planning in the production and distribution of food on a world-wide scale, there was not available, even at inflated prices, sufficient food for human needs. There continued a shortage, both objective and speculated, of the raw materials essential to Agriculture and this state of affairs affected Bermuda through the high prices which the farmer had to pay for the means to farm.

2. BERMUDA AGRICULTURE IN 1947.

Bermuda farmers will remember 1947 as a "bad year". The spring was dry and reduced production of all crops, especially potatoes. The autumn crops were annihilated by the hurricane of October 20th which damaged Agriculture to the value of £20,000. It is naive, however, to attribute to the weather, all the ills that affect our Agriculture. A chain is as strong as its weakest link, and the "fatigue" which has manifested itself in local Agriculture will no doubt, sooner or later, be apparent in other links of our economy.

Agriculture in Bermuda, as in other countries, is important for its own sake, irrespective of its aesthetic value to the tourist trade.

Food is the basis of all human activity, and any country which grows its own food and relies little on imports, occupies a strong position.

Bermuda could, and should, be much more self supporting in the production of food for human consumption. This is true in any circumstance; it has become a matter of extreme importance, if we are honest in our endeavour to conserve dollars.

The practice, criticised by the writer in 1946, of selling, for building purposes, Agricultural land, has continued. The tenant farmer in Bermuda has now little security of tenure. Rents paid for Agricultural land have increased in some cases simply because of the increased rentable value of the house attached to the land, were it rented to a non-farmer. At the present time not less than 20% of our good earth lies fallow, neglected and unproductive.

3. PRODUCTION AND MARKETING.

The availability of competent, dependable Agricultural labour, at a price that the farmer can pay, still remains the greatest single problem confronting Agriculture in Bermuda.

The circumstances of this problem are not easy to determine:—there is less land in cultivation than in 1946; there is declining productivity per acre and the total number of workers employed in bona fide agriculture or ancillary occupations has not been reduced significantly; yet it is estimated that to maintain and increase production, about 100 additional agricultural workers are required. The Board of Agriculture sent the writer of this report, and Mr. A. C. Benevides, to the Azores in the autumn of 1947 to recruit these workers. Up to the time of writing, the Portuguese Government have not issued the selected emigrants with passports and have not, officially, made any comments on the proposed emigration.

It is true, of course, that labour problems in Bermuda do not affect Agriculture only. The insufficiency of skilled labour for the upkeep of private grounds has tempted wealthier property owners to entice workers from the less remunerative tasks in Agriculture. There has arisen, in an acute form, the problem of the contract Agricultural worker who, having completed his work for the day on the farm, labours until dark in the garden of some private estate and arrives at his job the next morning in a state of chronic fatigue.

The Portuguese Agricultural worker is not, comparatively speaking, work-shy. What is the answer to this problem? To recruit additional Agricultural labour is necessary; it will postpone the crisis but not solve it. Farmers must give a reasonable day's pay for a reasonable day's work, and the farmer must be in an economic position to do this.

The whole system of the employment of Agricultural labour in Bermuda requires reviewing, and farmers must sooner or later consider whether, in fact, a man does produce more over a long period by working 60 hours or 50 hours per week.

On the other hand, contract Agricultural workers must be discouraged, by legal means, from their present disposition to disregard contracts freely entered into.

Given a fair chance by farmer and contract worker the Labour Committee, recently re-constituted by the Board of Agriculture, should be a tribunal powerful to mitigate the internecine disputes of Agriculture.

Machinery.

Because of labour deficiencies, in 1947, farmers made an increased use of the machinery service provided by the Department of Agriculture.

The equivalent of 900 acres were cultivated for 66 farmers.

The machinery owned by the Department is old and too large for Bermuda conditions. In spite of many efforts it was not possible to obtain new machinery in 1947.

The Department's enlarged spraying facilities were kept busy during the year and were occupied as follows:—

Spraying	farm crops	— 846	working hours
"	cedars	— 720	" "
"	citrus	— 441	" "
"	ornamental trees	— 200	" "

In addition to the above, several farmers purchased small market garden types of tractors with multi-purpose equipment. Additional milking machines have been installed on some of the large dairy farms without any apparent detriment to the quality of milk produced. In this connection farmers have been cautioned that dirty milk can easily result from the careless and unhygienic handling of a milking machine.

All Departmental vehicles and machinery have been serviced at the Department during the year; this has resulted in a considerable reduction in expenditure for this purpose.

The Department's garage is now well equipped to continue with this type of work.

Some of the Buildings at the Agricultural Station are greatly in need of repair; this matter has been brought to the attention of the Department of Public Works. It is believed that a few of our buildings are actually beyond repair and require demolition and reconstruction. This particularly applies to office and laboratory accommodation. It is essential to have a good laboratory accommodation especially for the use of officers of the Commonwealth Bureau of Biological Control; in the past expensive buildings have been rented for this most essential work and the total cost of rent will be greater than the capital expenditure required to build a new laboratory.

Supplies.

The supply of Agricultural raw material improved during the year under review but in most cases increased supply did not bring a decrease in price. The price of feed for all classes of livestock reached record heights and resulted in an increased cost of production of essential products such as milk, pork and eggs.

Care must be taken to make certain that the quality of animal feeding stuffs bears some close relation to the price and this is also true of the quality of Agricultural seeds. In 1947 there were many complaints against the alleged poor quality of such seed.

Agricultural Fertilizers in the form of castor pomace was fairly plentiful but castor pomace is not a completely balanced fertilizer. The cost per unit of available plant food is enormous; yet is largely used by local farmers: it might be more economical to import supplies of "straight" fertilizers such as sulphate of potash, superphosphate and sulphate of ammonia.

Marketing.

Government control of the price of staple, local, Agricultural produce was not rescinded during the year but it is believed that no effort

was made to enforce this means of protection to the farmer and consumer, and it would appear that, in fact, there is now no clearly defined control over the price of local Agricultural produce.

The War-Time Supplies Commission again assisted local Agriculture by cooperating with the Board of Agriculture in order to regulate importation of Agricultural produce in sympathy with local production, without causing hardship to the consumer.

The need to conserve dollars should result in an increased interest in local production and marketing.

Additional cold storage facilities, privately operated, were constructed and operated during 1947.

Government Marketing Centre.

A reduced volume of business was done during the year. The Government cold storage plant of 18,000 cubic feet, divided into six chambers, was in continuous operation, though the volume of produce stored was reduced.

Two of the electric motors burned out during the year and the Marketing Officer reported frequent difficulties with labour.

For 1947, the following volume of business was recorded at the Government Marketing Centre:—

	Purchases			Sales			Cold Storage		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
January	801	16	5	843	6	3	66	17	5
February	967	3	8	872	7	4	92	9	9
March	977	5	8	996	1	7	67	6	6
April	1283	16	6	971	15	3	124	15	0
May	1719	3	0	1208	10	5	84	12	3
June	945	17	6	1768	1	3	64	15	8
July	827	3	8	1101	14	7	54	1	0
August	614	17	1	737	17	4	81	16	0
September	360	5	2	626	12	7	166	1	2
October	461	8	3	541	8	9	87	1	9
November	239	17	10	231	15	8	130	0	0
December	105	11	9	116	11	0	87	14	10
	£9198	14	9	£10015	13	3	£1108	0	1

The undermentioned varieties and quantities of produce were handled by the Marketing Centre:—

Beans	5800 lbs.	Eggs	3000 doz.
Beets	2000 "	Lettuce	3500 "
Beets	6000 bchs.	Onions	23500 "
Broccoli	1225 lbs.	Potatoes	2000 bus. crates
Bananas	5106 "	Potatoes	750 brls.
Carrots	36000 bchs.	Sw. Potatoes	27300 lbs.
Carrots	26000 lbs.	Turnips	9800 lbs.
Cabbage	31000 "	Tomatoes	30500 lbs.
Cauliflower	6570 "	Water Melon	18000 lbs.
Cantaloupe	4400 "	Pumpkin	19700 lbs.
Corn	2040 ears	Seed Potatoes	
Celery	223 crates	direct from farm	1000 bus. crates

The profit and loss account for the Marketing Centre is also shown:—

To stock 1st January:—	95	11	8	By sales (Market):—	9,999 19 2
" purchases:—	9,294	6	6	" stock, 31st Dec.	13 13 6
" gross profit:—	623	14	6		
	£10,013	12	8		£10,013 12 8
To Transfer to Treasury Account:—	£11,025	19	1	By Gross profit b/d:	623 14 6
				" Cold storage sales:	1,108 0 1
					1,731 14 7
				" Government Grant:	9,294 4 6
	£11,025	19	1		£11,025 19 1

Rent, wages and salaries in respect of Marketing Centre operations are paid by the Department of Agriculture, and do not appear as a charge in the Profit and Loss Statements of the Marketing Centre.

The Government Grant and Cold Storage earnings have been omitted from the first section in order that it may show the trading profits of the Market. It must be realised, however, that rent, wages, salaries and other expenses do not appear in the accounts at all. The direct charges as shown by the Treasury records are as follows:—

Vote 15.	Salary of Marketing Officer	£ 600	0 0
" 16.	Salary of Clerk to Marketing Centre	370	16 3
" 26.	Cost of Cold Storage Operation	1,078	7 3
		£2,049	3 11

The accounts disclose a gross profit on trading of £623. 14. 6 and Cold Storage earnings of £1,108.0. 1, a total of £1,731. 14. 7. From these figures it will be seen that there will be a loss of £317. 9. 4 if the direct expenditure of £2,049. 3. 11 shown above, is charged against the accounts.

The Department saw with regret the decline of the Farmers Market. The administration of this market passed, during the year, directly to the Corporation of Hamilton who own the building which housed the market.

When the Corporation increased the annual rent to the stallholders two of the major operators terminated their tenancy and opened new premises and now sell imported as well as locally grown Agricultural produce.

Canning Plant.

During the year there was not available any large surplus of local produce suitable for canning.

The Canning Plant operated for a short period in January and packed 82½ cases of tomatoes.

The Canning Plant performed a useful function during war years in preserving food surpluses. It is now a matter of doubt as to whether this plant will again assume its former importance in our Agricultural economy unless plans are made to have grown definite acreages of produce for canning; it will be difficult to operate this plant if surpluses only are canned; for the simple reason that surpluses in local Agricultural production are always uncertain.

Easter Lilies.

A total of 31.1 acres of growing Easter lilies were inspected during the year; this is a decrease of 18.4 acres from 1946. The early flowering Easter lily — *Lilium Longiflorum* var. *Howardii* — occupies the greater part of the acreage under cultivation.

It would appear that this industry is now faced with severe commercial opposition and it will be necessary for growers to excel their previous best efforts to produce a disease free bulb.

The virus disease "yellow flat" is still too common in many lily fields.

Those farmers engaged in the Easter lily trade, together with many other Bermudians, were gratified to learn of the high honour which His Majesty conferred on Mr. H. E. D. Smith of St. David's, who, for so many years, has done so much for the development of the Bermuda Easter lily trade.

Exports.

The export of local Agricultural produce was not significant as the following figures show.

Bulbs.	Easter Lily Bulbs	—	1753.5 cases
	Amryllis	"	48 "
	Hyacinths	"	1 case
	Narcissus	"	8.5 cases
	Freesia	"	2 "
			1813 cases Total.
Other crops.	Onions	—	170 crates

The bulbs were mainly exported to U.S.A. They were inspected prior to shipment and found to be in good condition.

The onions were shipped to the West Indies.

There are given below some statistics on the estimated total agricultural production in Bermuda and its value.

Commodity	Area under crop expressed in acres	Average yield per acre in lbs.	Total yield in lbs.	Unit sale value	Farm value
Beans	40	4,000	160,000	1/3d	£10,000
Beets	20	12,000	240,000	5d	5,000
Broccoli	20	3,000	45,000	1/6d	3,400
Cabbage	20	12,000	240,000	5d	5,000
Carrots	40	12,000	480,000	5d	10,000
Potatoes, Irish	250	8,000	2,000,000	4d	33,000
" Sweet	20	8,000	160,000	4d	2,600
Tomatoes	30	10,000	300,000	1/-	15,000
Bananas	90	16,000	1,440,000	6d	36,000
Miscellaneous	20	8,000	160,000	6d	4,000
	545		5,125,000		£124,000

Citrus Production and Values:

Area under Citrus expressed in acres	No. of trees under cultivation	Average yield in dozens	Total yield in dozens	Unit Value	Farm Value
45	6,000	4	24,000	3/6d	£4,200

Lily Bulbs Production and Values:

Area under cultivation in acres	No. of bulbs planted	No. of bulbs exported	Value
30	1,700,000	350,700	£14,000

No. of flower buds exported	Value	No. of flower stems exported	Value	Total farm value
600,000	£2,500	12,000	£2,400	£18,900

4. LIVESTOCK.

The number of Agricultural livestock in Bermuda as at February, 1947, are shown below:—

A. Dairy Animals

Cows (Dry and in milk)	Heifers	Bulls
1080	250	40

B. Pigs

Sows	Boars	Fattening Pigs	Piglets
300	90	1075	600

C. Goats

Adult goats	Kids
300	200

D. Horses

Adult horses

500; of these, about 250 are employed in agriculture and the remainder are carriage horses.

LIVESTOCK PRODUCTS.

A. Milk

Approximately 580,000 galls. of milk were produced in 1947 but of this amount not less than 280,000 gallons were not offered for pasteurization and public sale. About 50% of the cow population is not in dairy herds but consists of family cows.

The volume of goat milk produced is not known.

B. Meat (Beef)

Cow Beef	107,600 lbs.	Pork	282,750 lbs.
Veal	42,840 lbs.	Goat Mutton	1,560 lbs. (offered for sale)
	150,440 lbs.		

C. Poultry Production and Values:

No. of laying hens	No. of small chickens	Average Egg production per hen	Total Egg production
30,000	20,000	120	3,600,000

Unit value of eggs	Total value of eggs
5½	£82,500

Poultry Meat consumed in lbs.	Unit value of meat	Total Value of Meat consumed eggs	Total value of eggs and meat consumed
80,000	2/6d	£10,000	£92,500

DISEASES OF LIVESTOCK

Tuberculosis

All dairy animals were tested for tuberculosis at least two times during the year. All reactors were compulsorily slaughtered, and the owners of such animals received compensation up to £20 per head.

In the first test, 1,236 head of cattle were tested for tuberculosis and 5 animals reacted positively — a percentage of point four (.4%).

In the second test for 1947 1,356 head of cattle were tested and two animals reacted positively — a percentage of point one four (.14%).

Taking both tests together, 2,592 head of cattle were tested and the percentage incidence of tuberculosis was point two seven percent (.27%).

The carcases of these seven animals were inspected and only slight tubercular lesions were found in each case.

As in 1946, no bulls reacted positively; and no carcase of a bull was found with tubercular lesions.

In 1946 the percentage of reactors was 2.13%.

The 1947 percentage of .27% is very encouraging, and credit must be given to the Government Veterinary Officer (Dr. E. R. Earl) for these results.

Contagious Abortion.
(Brucellosis, Bang's Disease)

All calves reared during 1947 were, between the ages of 4 to 8 months, vaccinated against contagious abortion by strain 19 *Brucella abortus* vaccine. All calves so vaccinated were blood tested thereafter to determine whether the vaccination was successful.

Two hundred and thirty-three (233) calves were vaccinated and 80% of these were successfully immunised by the first vaccination.

The extent of the incidence of Contagious Abortion amongst dairy cows is not known for certain. Farmers do not always report cases to their private veterinary practitioners or to the Government Veterinary Officer. It is believed, however, that the incidence of this disease is very limited.

Other Diseases.

No other diseases of dairy animals were reported in significant numbers; there were, as in 1946, a few cases of hypocalcaemia (milk fever) and mastitis.

Hog Cholera

All hogs in the Island were inoculated with an Anti hog-cholera serum during the spring; additional inoculations were administered when an outbreak occurred or was suspected.

Two thousand and sixty-five (2065) hogs were inoculated during 1947. One outbreak of the disease occurred at St. George's amongst swine that were not inoculated during the routine period; the owner had not disclosed their whereabouts. Four (4) hogs died in this outbreak which was successfully confined to one small area.

It would appear that hog-cholera in Bermuda is successfully controlled by one inoculation per year of Anti-hog cholera-serum, administered to hogs in the spring before the advent of hot, summer weather.

Livestock Improvement.

In 1947 there was passed The Livestock Improvement Act, 1947, which requires owners of young bulls and young boars to have their animals inspected and licensed for service: poor type animals will not be licensed.

Further efforts were made to import from the U.S.A. semen from pedigree Guernsey and Ayrshire Bulls. These efforts were not successful due to delays in transporting the material.

During the year 6 cows were imported; two were pedigreed Ayrshire heifers in calf to a pedigreed Ayrshire Bull. These animals were presented to Sir W. J. Howard Trott by Messrs. Chalmers-Watson of Fenton Barnes, East Lothian, Scotland.

It is understood that these animals will be used as foundation stock for a pedigree herd of Ayrshire cattle.

Since milk in Bermuda is not sold on a butterfat content but on volume, it may well be that in Bermuda the Ayrshire will be a more profitable dairy breed than the Guernsey.

During the year, the Livestock Committee of the Board of Agriculture, the Milk Inspector and the Government Veterinary Officer visited all Dairy Farms and Dairy buildings. Dairy Farms were graded for efficiency and those in the lower categories were given assistance and suggestions so that they might improve.

5. PLANT PATHOLOGY.

The problem of controlling insects attacking the Bermuda Cedar *Juniperus Bermudiana* occupied practically the whole of the Plant Pathologist's attention. This officer (Mr. J. M. Waterston) was seconded from the Department to work under Dr. W. R. Thompson, Director of the Commonwealth Bureau of Biological Control, who arrived in the Colony on January 21st.

The Bermuda Cedar *(Juniperus Bermudiana)* is attacked by at least seven different genera of insects. By far the most extensive and serious damage is done by two scale insects — *Diaspis visci* or the Juniper scale and *Lepidosaphes newsteadi* or the Oyster shell scale.

At the time of writing this report, *Diaspis visci,* the scale insect that has caused serious damage in the Paget area, is attacking cedar trees in areas from Somerset Bridge to St. George's, i.e. over more than three quarters of the area of Bermuda. The degree of damage varies, of course, within this area; a heavy population of this insect is required to kill an adult cedar tree; some trees in Bermuda, other than the cedars, are slightly infested with this pest; no cedar tree is immune to attack, though some trees show varying degrees of resistance.

It is reasonably certain that, by the end of 1948, the Juniper scale will be found co-extensive with its host, i.e. over the whole of Bermuda. This insect is potentially capable of killing, sooner or later, all the cedar trees in Bermuda and it will not be possible completely to eradicate it so long as there are cedar trees in Bermuda.

When *Diaspis visci* was accidentally introduced into Bermuda in 1940, it was accompanied, apparently, by at least one enemy—the small, parasitic, hymenopterous insect *Aspidiotiphagus lounsburyi.* This parasite is found in Bermuda wherever *Diaspis* is found and at one time it appeared that *Aspidiotiphagus,* by itself, might efficiently control *Diaspis visci.* This, however, has not come to pass, and one is obliged to conclude that if this insect is to be controlled, it will be controlled by a complex of parasites and predators.

Acting on this theory which is corroborated by experience in controlling other insects, the Commonwealth Bureau of Biological Control, directed by Dr. W. R. Thompson, introduced into Bermuda in 1947, parasites and predators of *Diaspi visci.*

Of these introduced enemies of *Diaspis visci,* it would appear, at the time of writing this report, that two have become established in Bermuda — The "wasp" *Aphytis sp.* and the *Coccinellid Lindorous lophanthae.*

It is the writer's opinion that there was present in Bermuda a species of *Aphytis*, parasitic on *Diaspis visci.*

The "Lady-Bird" Beetle *Lindorous lophanthae* is recoverable freely in an area extending from Burnt House Hill to "Glendon", Harrington Sound and from the North Shore to the South Shore between these two points.

The other Coccinellidae introduced have not been recovered; it is likely that they were not established, although there is the slight possibility that the insects are hibernating.

Lepidosaphes newsteadi

This scale insect was most likely introduced to the Tuckers Town—Mid-Ocean area not later than 1940.

It has spread to St. George's, St. David's and westward to the Frascatti Golf Course.

This insect can kill a cedar tree rapidly and to do so, need not be present on the tree in large numbers.

In addition *Lepidosaphes* kills trees in a checker-board fashion; Diaspis kills trees along a broad front.

Lepidosaphes is either not parasitized or only slightly parasitized by the insects which attack *Diaspis*, yet the Oyster shell scale has not spread much in 1947 and the amount of damage done is not much more extensive than in 1946. It may well be that there has evolved a biological variety of the insect more compatible to its host: on the other hand, there is no doubt that the intensity of the *Lepidosaphes* infestation has decreased; the reason for this is not, at present, known.

Further details of the investigation and control work done by the Commonwealth Bureau of Biological Control have been presented to the Board in Dr. W. R. Thompson's reports.

No other unusual insect damage to economic crops was recorded during the year.

No unusual outbreaks of fungus damage was recorded.

A disease, apparently a virus, attacked certain varieties of tomatoes grown at the Department of Agriculture. It appears that the disease is seed borne—and it resembles, in many ways, the so-called "Fern-Leaf" Disease of Tomatoes.

No previous record of this disease is known in Bermuda.

Plant Quarantine.

Strict inspection of plant importations were made during the year; these importations are allowed only under permit from this Department.

All Aircraft (a total of 1384) and surface vessels arriving at Bermuda were inspected. The following insects were intercepted:—

Diptera	381	—	16 alive:	365 dead
Japanese Beetle	259	—	29 alive:	230 "
Other Coleoptera	19	—	all dead:	
Mosquitoes	1	—	dead	

Cockroaches	3	—	dead
Moths	1	—	dead
Spiders	1	—	alive
Lizards	1	—	alive

Consideration of the above figures shows that Bermuda runs a great risk of importing pests dangerous to human health and agriculture.

Even with the most rigorous plant quarantine and inspection service, it becomes more and more likely that the Japanese Beetles will become established in Brmuda.

REAFFORESTATION.

It is estimated that cedar trees over an area of approximately five square miles have been killed by one or other of the scale insects described above. It is estimated that one acre of land carries about 300 adult trees: of this number, however, only about 25% are of commercial value; the remainder might be useful for firewood and fence material.

The Board of Agriculture have agreed that it is the duty of the private landlord to cut down and process dead cedar trees on his property.

The Board, however, have decided that it shall be the duty of the Department of Agriculture to make available seedling trees to any land owner.

The Department has already made plans to this effect.

The seedlings offered will be of three general groups:

(1) Trees of economic importance,
(2) Shade and ornamental trees,
(3) Palms.

6. HORTICULTURE.

During the year, the Horticulturist devoted considerable attention to Citrus culture.

All orchards owned by members of the Citrus Growers Association were visited at least three times when spraying and fertilizing was carried out.

Many young trees were imported and very good results were obtained by most growers from their trees.

The Third Annual Citrus Exhibition was held on the 11th and 12th December. Twenty-two persons exhibited one hundred and eleven exhibits; thirty-one varieties of citrus were on show.

Locally grown citrus fruit was offered for sale in better condition than in previous years: nevertheless, some uncleaned, poor-type fruit was noticed and growers should certainly take every possible care to market their fruit in the best possible condition.

Large orders for citrus trees to be imported in the spring of 1948 have been received.

The ornamental grounds at the Agricultural Station did not look their best during the year. Great difficulty was experienced in obtaining and retaining suitable labour.

The hurricane in October severely damaged the trees and plants; many ornamental trees were uprooted and destroyed and many others were severely mutilated.

Large numbers of vegetable seedlings were distributed to home gardeners during the year; many ornamental plants were also distributed.

7. FINANCE.

There is appended a summary of Expenditure by the Department of Agriculture for the year 1947:—

Vote No.	Service:	Appropriation & Resolves:	Expenditure:	Balance Lapsing:
1	Fees to Members of Board	80 0 0	80 0 0	nil
2, 3, 4, 5, 6, 7, 9 & 12	Salaries	5,480 0 0	5,037 17 11	442 2 1
8	Assistant Horticulturist	450 0 0	450 0 0	nil
10	Travelling allowance to Govt. Veterinary Officer	75 0 0	75 0 0	nil
11	Crop Reporters & Farm Insps.	150 0 0	nil	150 0 0
13	Extra Clerical Assistance	1,298 0 0	1,104 0 5	193 19 7
14	Entomologist	800 0 0	nil	800 0 0
15	Marketing Officer	600 0 0	600 0 0	nil
16	Clerk, Marketing Centre	468 0 0	370 16 8	97 3 4
17	General Grant	2,513 10 8	2,504 11 1	8 19 7
18	Inspection Services etc.	400 0 0	135 0 11	264 19 1
19	Control of Animal Diseases	1,756 13 9	953 16 6	803 3 3
20	Control of Plant Diseases & Pests	750 0 0	725 10 6	24 9 6
21	Horticulture & Public Parks	2,001 7 0	1,999 8 10	1 18 2
22	Government House Gardens	1,800 0 0	1,649 18 10	150 1 2
23	Departmental Contingencies, etc.	411 13 0	411 6 3	6 9
24	Packing House, Services, etc.	2,200 0 0	1,097 14 10	1,102 5 2
25	Canning Plant	4,436 3 6	1,512 5 11	2,923 17 7

Vote No.	Service:	Appropriation & Resolves:	Expenditure:	Balance Lapsing:
26	Cold Storage Plant Operation	1,600 0 0	1,078 7 3	521 12 9
27	Local Exp. of Production etc.	400 0 0	nil	400 0 0
28	Purchase, Upkeep and Operation of Agricultural Equipment	4,150 0 0	3,111 16 4	1,038 3 8
29	Purchase & Storage of Agricultural Supplies	500 0 0	315 18 2	184 1 10
30	Purchase & Storage of Potatoes & other etc.	18,001 8 0	10,309 1 10	7,692 6 2
31	Agricultural Scholarships	880 0 0	278 18 8	601 1 4
32	Agricultural Exhibition	500 0 0	33 13 0	466 7 0
33	#Laboratory & Material for Treatment of Cedars	11,800 0 0	11,798 8 3	1 11 9
34	Publications	1,100 0 0	620 0 0	479 18 0
35	Travelling Expenses	200 0 0	200 0 0	nil
36	#Reafforestation	1,200 0 0	265 4 8	934 15 4
		£66,001 15 11	£46,692 12 10	£19,283 3 1

(# Vote 36 transferred from Vote 33)

A summary of receipts for the same period follows:—

Vote 2 (a) Packing House	138 18 0	
2 (b) Marketing Centre	11,332 17 0	
2 (c) Canning Plant	125 1 9	
2 (d) Other Receipts	2,393 3 4	
Misc. Reimbursements	6 16 11	£13,996 17 0

SCHEDULE

Hire of Agricultural Equipment	507	11	6
Sale of Plants, Vegetables, etc.	532	9	9
Sale of Fertilizer	32	13	4
Sale of Citrus	461	18	0
(Memo — £66. 18. 0. Avocado Trees)			
Sale of Livestock	59	13	4
Stock Service	84	4	0
Rentals of Farmers Market	18	0	0
Sale of Bushel Crates	138	18	0
Sale of Canned Vegetables	125	1	9
Miscellaneous Sales	297	8	10
Pruning Cedars	15	1	6
Services to Citrus Growers Assn.	400	0	0
Memo: Portuguese Labour Suspense Account ((£5,580. 0. 0.)			
Marketing Centre	11,332	17	0
	£13,996	17	0

£13,996 17 0

8. STAFF.

On the 26th of May, the Plant Pathologist, Mr. J. M. Waterston, was transferred to the Nigerian Department of Agriculture as a Senior Botanist. This officer held the position of Plant Pathologist to this Department since September 17th, 1936. This vacancy has not yet been filled.

There was one other major change in staff — the Accountant, Mr. W. B. Johnstone, was transferred to the Audit Department on the 1st of November; he was succeeded by Mr. D. C. Eldridge.

Director of Agriculture:	W. J. Kinghorn, M.A., (Edin.), B.Sc. (Edin.)
Plant Pathologist:	Vacant
Government Veterinary Officer:	E. R. Earl, V.S., B.V.Sc.
1st Agricultural Assistant:	W. R. Evans
2nd Agricultural Assistant:	C. V. S. Early
Horticulturist:	C. A. Baker
Assistant Horticulturist:	A. L. Rego
Inspector of Produce:	T. A. Hollis
Marketing Officer:	J. H. Hollis
Accountant:	D. C. Eldridge
Clerk to Board and Director:	Thelma A. Smith
Assistant Clerk:	Marie MacDougall
Assistant Book-Keeper:	Irene L. Kellaway

9. ACKNOWLEDGMENTS.

The Department gratefully acknowledges all assistance received during the year from Departments of Agriculture in many parts of the world; particular mention may be made of the work done for us by the Commonwealth Bureau of Biological Control, directed by Dr. W. R. Thompson and of the co-operation of the U. S. Department of Agriculture.

Respectfully submitted,

W. J. KINGHORN,
Director of Agriculture.

March, 1948.